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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,312	10/07/2003	Billy Gayle Moon	10-004	3219

23164 7590 01/08/2009
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EXAMINER	
AHN, SANGWOO	
ART UNIT	PAPER NUMBER
2168	
MAIL DATE	DELIVERY MODE
01/08/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/679,312	**Applicant(s)** MOON ET AL.	
	Examiner SANGWOO AHN	**Art Unit** 2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2008*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 – 22, 34 – 50, 52 and 54* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1 – 22, 34 – 50, 52 and 54* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060714*.	6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is in response to Applicant's communication filed on 9/5/2008.

Claims 1 – 22, 34 – 50, 52 and 54 are pending.

Claims 1 – 3, 12 – 14, 34 – 36, 45 and 48 have been amended.

Claims 23 – 33, 51 and 53 have been canceled.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

Applicant mainly argued:

1. Solon neither discloses nor suggests the claimed "network node ***synchronizing*** its world objects enabling the decisions by the network node to be ***coordinated*** with the other network nodes, where the network node and the other network nodes execute their respective decisions ***autonomously of each other***."

2. Solon neither discloses nor suggests the claimed "***smart world objects***" configured for "***generating decisions***."

Examiner respectfully traverses the arguments for the following reasons:

1. Solon clearly discloses the aforementioned features: Network node synchronizing its world objects (Figure 2 element 220: share resources between MRVs, et seq.) enabling the decisions by the network node (Figure 2 element 0230: computation resources shared between MRVs with parallel processing capabilities,

Figure 17 element 1740: each MRV responds to environmental stimulus → suggests each "network node" is capable of making its own local decisions, et seq.) to be coordinated with the other network nodes (Figure 2 element 0230: computation resources are shared between MRVs with parallel processing capabilities, Figure 24 element 2430: coordination of a swarm's overall planning is made, et seq.), wherein the network node and the other network nodes execute their respective decisions autonomously of each other (Figure 23 element 2310: each MRV tracks all other MRVs in swarm in real time → suggests each "network node" is capable of making independent decisions, Figure 18 element 1840: MRV's use "local" rules to interact with each other and with the environment, et seq.).

2. Solomon clearly suggests the smart world object configured for generating decisions in Figure 2 element 230, as computation resources (smart world objects which enables generating decisions) are shared between MRVs with parallel processing capabilities (processing of the computation resources results in "generating decisions"). Furthermore, local decision-making by each MRV (analogous to "network node") is disclosed throughout the reference.

Fore the foregoing reasons, the rejections of the pending claims are sustained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 2, 4 – 11, 12 – 13, 15 – 22, 34 – 35 and 37 – 50, 52 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication Number 2004/0134336 issued to Neal Solomon (hereinafter "Solomon").

- Regarding claim 1, Solomon discloses,

A method in a network node, the method comprising:

establishing by the network node a world object database in the network node and that stores world objects, the world objects representing respective attributes of an infosphere of a network that includes the network node (Figure 2 elements 220: sharing network resources between MRVs, 230, 240 and 250, Figure 6 elements 610 and 630, Figure 23 element 2310, paragraph 160 lines 6 – 10, paragraph 173 lines 6 – 7, et seq.), the world object database including smart world objects as a subclass of the world objects, the establishing including the smart world objects generating decisions based on evaluation of selected world objects (Figure 2: 230: computation resources shared between MRVs with parallel processing capabilities, paragraph 23 lines 1 – 5, paragraph 30 lines 9 - 10, et seq.);

adding by the network node, as world objects to the world object database, sensor objects from sensor data generated in response to detected attributes within the infosphere, the sensor objects including network node objects associated with the network node (paragraph 23 lines 1 – 5, paragraph 30 lines 9 - 10, Figure 2 element 220, Figure 6 element 640, Figure 3 element 2310, Figure 29 element 2950, et seq.);

forming the network by the network node based on: discovery of other network nodes, adding second network node objects as world objects to the world object database and representing attributes of the other network nodes, and synchronizing the world objects with the other network nodes (Figure 2 element 220: share resources between MRVs, et seq.) enabling the decisions by the network node (Figure 2 element 0230: computation resources shared between MRVs with parallel processing capabilities, Figure 17 element 1740: each MRV responds to environmental stimulus → suggests each "network node" is capable of making its own local decisions, et seq.) to be coordinated with the other network nodes (Figure 2 element 0230: computation resources are shared between MRVs with parallel processing capabilities, Figure 24 element 2430: coordination of a swarm's overall planning is made, et seq.), wherein the network node and the other network nodes execute their respective decisions autonomously of each other (Figure 23 element 2310: each MRV tracks all other MRVs in swarm in real time → suggests each "network node" is capable of making independent decisions, Figure 18 element 1840: MRV's use "local" rules to interact with each other and with the environment, et seq.); and

performing by the network node a change in at least one of position, velocity, orientation, and wireless communication characteristics of the network node based on detecting a world object specifying a directive that is based on at least one of the decisions, for optimization of the network node relative to the other network nodes

(Figure 16 element 1670: compute optimum route, Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.).

■ Regarding claim 2, Solomon discloses,

wherein the synchronizing of the world objects includes receiving remote world objects from the other network nodes, and storing the remote world objects as world objects in the world object database, the smart world objects generating updated decisions based on the remote world objects (Figure 2 lines 230 and 240, Figure 6 elements 630 and 640, paragraph 13 elements 1310 and 1320, et seq.).

■ Regarding claim 4, Solomon discloses,

wherein the establishing step includes instantiating execution of a world factory process configured for initializing the world object database and adding/removing the world objects to/from the world object database (Figure 2 element 230, Figure 4 elements 420 and 430, paragraph 162 lines 6 - 7, paragraph 280 lines 1 – 17, et seq.).

■ Regarding claim 5, Solomon discloses,

wherein the adding and performing steps are executed based on instantiating execution of a robot factory process configured for generating, for each smart world object, a corresponding robot objects as one of the world objects, the adding step executed by a sensor process in at least one robot object and the performing step executed by a motor complex process in at least one robot object (Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.).

■ Regarding claim 6, Solomon discloses,

wherein the smart world objects own respective brain objects configured for generating the decision, each brain object owning associated reaction objects configured for generating respective advice elements from associated world objects, each brain object configured for: determining the corresponding decision based on the associated advice elements relative to respective influence factors, and storing the decision as a vector object (Figure 13 elements 1310, 1320, 1330 and 1340, Figure 17, Figure 18 element 1840, Figure 37 element 3770, paragraph 173, paragraph 220 lines 15 – 17, et seq.).

■ Regarding claim 7, Solomon discloses,

wherein the performing step includes sending the directive by the motor complex process to a mobility platform in the network node in an attempt to implement the vector object (Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.).

■ Regarding claim 8, Solomon discloses,

wherein each world object owns an associated three-dimension shape object, the adding step including generating a request, by one of the robot objects, to the world factory for generation of an obstacle object in response to the sensor process detecting an obstacle in the infosphere (Figure 6 elements 610, 620 and 630, Figure 11, Figure 17, Figure 29 elements 2940 and 2950, Figure 43, Figure 73, et seq.).

■ Regarding claim 9, Solomon discloses,

Wherein establishing step includes adding world domains as a subclass of the world objects, each world domain configured for: (1) owning at least one world object, (2) having a native vector space, (3) encompassing a location object specified in the corresponding native vector space, and (4) having a transformational matrix configured for mapping the corresponding native vector space to other vector spaces used in the world object database, each world object configured for owning an associated three-dimensional object (Figure 6 elements 610, 620 and 630, Figure 11, Figure 17, Figure 29 elements 2940 and 2950, Figure 43, Figure 73, paragraph 202, et seq.).

■ Regarding claim 10, Solomon discloses,

wherein the establishing step further includes adding way points as a subclass of the world objects, each waypoint representing an attribute relative to one of the vector spaces of the world object database (paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, Figure 6 elements 610, 620 and 630, Figure 11, Figure 17, Figure 29 elements 2940 and 2950, Figure 43, Figure 73, paragraph 202, et seq.).

■ Regarding claim 11, Solomon discloses,

wherein the establishing step further includes nesting a group of the world domains, each identifiable as child world domains, within at least one of the world domains identifiable as a parent world domains, the child world domain inheriting the attributes of the associated parent world domain (Figure 19 element 1910, Figure 41, et seq.).

■ Claims 12 – 13 and 15 – 22 are rejected based on the same rationale discussed in claims 1 – 2 and 4 – 11 rejections.

■ Claims 34 – 35 and 37 – 44 are rejected based on the same rationale discussed in claims 1 – 2 and 4 – 11 rejections.

■ Regarding claim 45, Solomon discloses,

A method for controlling a network node in a network, the method comprising:

receiving by the network node detected attribute information that indicates a detected attribute relative to any one of the network node or the network, the detected attribute including any one of a communication attribute or a physical attribute (paragraph 23 lines 1 – 5, paragraph 30 lines 9 - 10, Figure 2 element 220, Figure 6 element 640, Figure 3 element 2310, Figure 29 element 2950, et seq.);

generating by the network node a movement directive based on the network node executing an optimization of routing metrics relative to the received detected attribute information and according to a prescribed routing protocol (Figure 73 elements 7360 and 7370, paragraph 40 lines 9 – 14, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 280 lines 1 - 2 and 22 - 24, paragraph 283 lines 10 – 14, et seq.);

the network node synchronizing the world objects with the other network nodes (Figure 2 element 220: share resources between MRVs, et seq.) enabling the decisions by the network node (Figure 2 element 0230: computation resources shared between MRVs with parallel processing capabilities, Figure 17 element 1740: each MRV responds to environmental stimulus → suggests each "network node" is capable of making its own local decisions, et seq.) to be coordinated with the other network nodes (Figure 2 element 0230: computation resources are shared between MRVs with parallel processing capabilities, Figure 24 element 2430: coordination of a swarm's overall planning is made, et seq.), wherein the network node and the other network nodes execute their respective decisions autonomously of each other (Figure 23 element 2310: each MRV tracks all other MRVs in swarm in real time → suggests each "network node" is capable of making independent decisions, Figure 18 element 1840: MRV's use "local" rules to interact with each other and with the environment, et seq.); and

sending by the network node the movement directive to a mobility platform associated with the network node, the movement directive causing the mobility platform to implement the optimization by implementing a physical change for the network node (Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.).

- Regarding claim 46, Solomon discloses,

receiving sensor information from the mobility platform and indicating the physical attribute (paragraph 23 lines 1 – 5, paragraph 30 lines 9 - 10, Figure 2 element 220, Figure 6 element 640, Figure 3 element 2310, Figure 29 element 2950, et seq.); or

receiving the detected attribute information from a second network node in the network via a wireless communications link.

- Regarding claim 47, Solomon discloses,

changing any one of a position of the network node, velocity of the network node, or network interface utilization in the network node (Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.).

- Regarding claim 48, Solomon discloses, A network node of a network, the network node comprising:

an executable resource configured for generating a movement directive based on executing an optimization of routing metrics relative to received network attribute information and according to a prescribed routing protocol, the received network attribute information indicating a detected attribute relative to any one of the network node or at least one of the other network nodes in the network, the detected attribute including any one of a communication attribute or a physical attribute, the executable resource further configured for synchronizing the detected attribute information with the other network nodes (Figure 2 element 220: share resources between MRVs, et seq.) enabling the movement directive generated by the network node to be coordinated with the other network nodes (Figure 2 element 0230: computation resources are shared between MRVs with parallel processing capabilities, Figure 24 element 2430: coordination of a swarm's overall planning is made, et seq.), wherein the network node and the other network nodes execute their respective optimization of routing metrics autonomously of each other (Figure 16 element 1670: compute optimum route, Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.) (Figure 73 elements 7360 and 7370, paragraph 40 lines 9 – 14, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 280 lines 1 - 2 and 22 - 24, paragraph 283 lines 10 – 14, paragraph 23 lines 1 – 5, paragraph 30 lines 9 - 10, Figure 2 element 220, Figure 6 element 640, Figure 3 element 2310, Figure 29 element 2950, et seq.); and a mobility platform configured for implementing the optimization by causing a physical change for the network node in response to the movement directive (Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.).

■ Regarding claim 49, Solomon discloses,

sensors configured for generating sensor information, the mobility platform providing the sensor information to the executable resource as the received network attribute information (paragraph 23 lines 1 – 5, paragraph 30 lines 9 - 10, Figure 2 element 220, Figure 6 element 640, Figure 3 element 2310, Figure 29 element 2950, et seq.).

■ Regarding claim 50, Solomon discloses,

changing any one of a position, velocity, or network interface utilization in the network node (Figure 73 elements 7360 and 7370, paragraph 171 lines 8 – 11, paragraph 176 line 23, paragraph 283 lines 10 – 14, et seq.).

■ Regarding claim 52, Solomon discloses,

sending an update to another node in the network that identifies the movement directive generated by the network node (Figure 23 element 2310, et seq.).

■ Regarding claim 54, Solomon discloses,

generating an update that is output by the network node to another node in the network, the update identifying the movement directive generated by the executable resource (Figure 23 element 2310, et seq.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 14 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Solomon and "*Routing in the Internet*" (henceforth referred to as Burden).

- Regarding claim 3, Solomon discloses the method of claim 1 and discovering the other network nodes and synchronizing the world objects, as discussed in claim 1 rejection.

Solomon does not explicitly indicate discovering the nodes based on a mobile Internet Protocol (IP).

However, Burden discloses discovering the nodes based on a mobile Internet Protocol (IP) in page 6; section The OSPF (RFC 1247) Protocol, ¶ 2. At the time the invention was made, it would have been obvious to a person of obvious skill in the data processing art to modify Solomon's method of discovering network nodes and sharing objects between them to incorporate Burden's routing method, thus enabling network nodes to identify each other, establish common operating procedures and also request specific link information from neighbors.

- Claims 14 and 36 are rejected based on the same rationale discussed in claim 3 rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANGWOO AHN whose telephone number is (571)272-5626. The examiner can normally be reached on M-F 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571) 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tim T. Vo/
Supervisory Patent Examiner, Art Unit 2168

12/10/2008
/S. A./
Examiner, Art Unit 2168